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Deliverable 3.3

Knowledge Platform – Final release

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PU	Public	X
PP	Restricted to other program participants (including the Commission Services)	
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CO	Confidential, only for members of the consortium (including the Commission Services)	

Deliverable Administration & Summary	EeB-CA2
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3.	2016/05/09	Giampiero Savina as representative of D’Appolonia project team (DAPP)	Final D3.3 report	

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1. EXECUTIVE SUMMARY

EeB-CA² initiative is to provide the right set of instruments supporting technology-clustering and geo-clustering upon the whole set of (FP7) EeB PPP EC-funded projects, recently closed and ongoing, related to energy efficiency in the built environment, with the following primary ambition: to enhance and rationalise coordinated and broader dissemination, technology transfer and future exploitation activities of clustered projects, so as to help them better promoting and marketing their achievements and deliverables.

The aim of this report is to support the online release of the final version of the EeB-CA² Knowledge Platform whose nature is OTHER.

The final version of the EeB-CA² Knowledge Platform was released for internal check within the Project Consortium since the end of March 2016 (m14 in project time line), while the consolidated version was released online by April 2016 (m15). The platform is now linked to the project URL <http://www.e2b-clusters.eu/> as stated in deliverable “D3.1 Platform Requirements and Design”. It is accessible directly by the following URL: <http://platform.e2b-clusters.eu> or by clicking the menu item Platform in the project website.

The data (knowledge) currently contained in the platform comes from several sources including:

- The monitoring survey (2015) led by ECTP in the context of WP2 and presented to the 110 EeB PPP projects funded under FP7 by the European Commission.
- Additional data about the project demo sites which were retrieved and collected through phone interviews led by SEZ in the context of WP5 (these interviews are still on-going).
- Eventually, data related to building typology destination use is extracted from third party service like the Buildings Performance Institute Europe (BPIE) <http://bpie.eu/>.

Information about projects funded under H2020 will be loaded after the results acquisition of the new questionnaires.

The overall EeB-CA² database schema is presented in Appendix 1.

Starting from the first release of the platform, the final release includes also a new set of filters, a small search engine to filter projects by description, innovation or exploitable results.

The final release includes also backend with a wizard to enable platform manager to load projects into the database.

2. INTRODUCTION

2.1 Purpose of this Document

The EeB-CA² Knowledge Platform **is open** to any technological and organizational solution as long as it deals with the Platform core and objectives, i.e. targeting technology deployment and transfer to market.

This report is a support document to the released version EeB-CA² Knowledge Management Platform available at the URL <http://platform.e2b-clusters.eu>

2.2 Structure of the Deliverable

This document is structured as follows:

- Chapter 3 provides a visual overview of the Graphical User Interface (GUI) of the EeB-CA² Knowledge Platform including system architecture and main technologies adopted for the development of the platform (functionalities offered to stakeholders are presented in report D3.1 Platform Requirements and Design);
- Chapter 4 reports the backend features for projects management;
- Chapter 5 reports the conclusions.

2.3 Contributions of Partners

DAPP had the main responsibility to prepare this document and to develop the first release of the platform. CSTB, ECTP and SEZ provided feedback to guide the implementation of the platform. CSTB did a final peer-review of the report before submission.

3. EeB-CA² PLATFORM

The final version of the EeB-CA² Knowledge Platform is available at URL <http://platform.e2b-clusters.eu>.

The tool is an extension of GeoCluster Mapping Tool developed in the context of **Geo-clustering to deploy the potential of Energy efficient Buildings across EU** - FP7 funded project (GA n. 285501).

It builds on the existing structure and earlier available data from the GeoCluster Mapping Tool (available at the URL <http://www.geoclusters.eu/ge2O/>). A new set of layers specific to EeB-CA2 is provided.

3.1 Technical features

The knowledge platform is based on Sencha¹ Ext JS JavaScript framework and it supports all major web browsers including: Internet Explorer 6+, Firefox 3.6+ (PC, Mac), Safari 4+, Chrome 10+ and Opera 11+ (PC, Mac).

3.2 Overall structure

The main page of the EeB-CA2 platform is represented below in Figure 1.

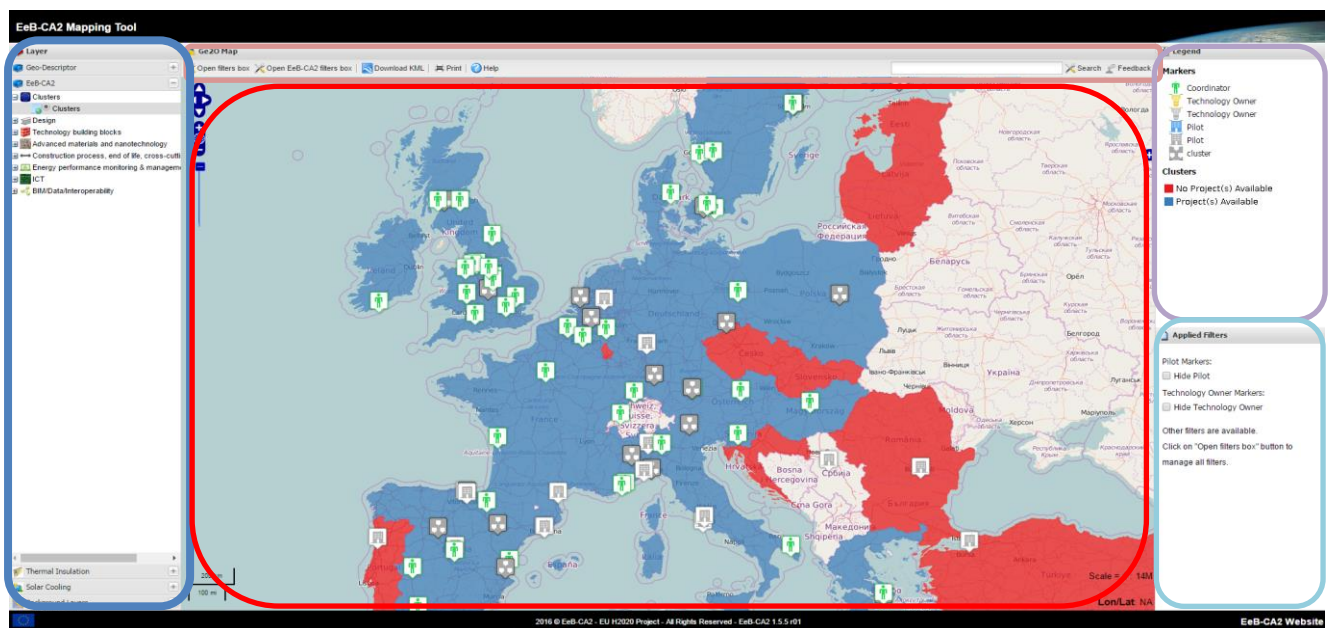


Figure 1 - Main Platform Page

This main page is divided into five areas:

1. **Layer tree:** this area presents groups of layers.
2. **Toolbar:** access to the “filters box”, search engine, export, print and help functionalities.

¹ Sencha platform : <https://www.sencha.com/>

3. **Map:** in this area a map is rendered with the selected layer(s) information
4. **Legend:** here are contained information on selected layers
5. **Applied Filters:** here user can apply filters when available

In the next sections specific focus is given to the “**Layer tree**” and “**Map**” areas and to the filtering features.

3.3 Layer Tree

Figure 2 presents the available selection under the EeB-CA² **layer tree**.

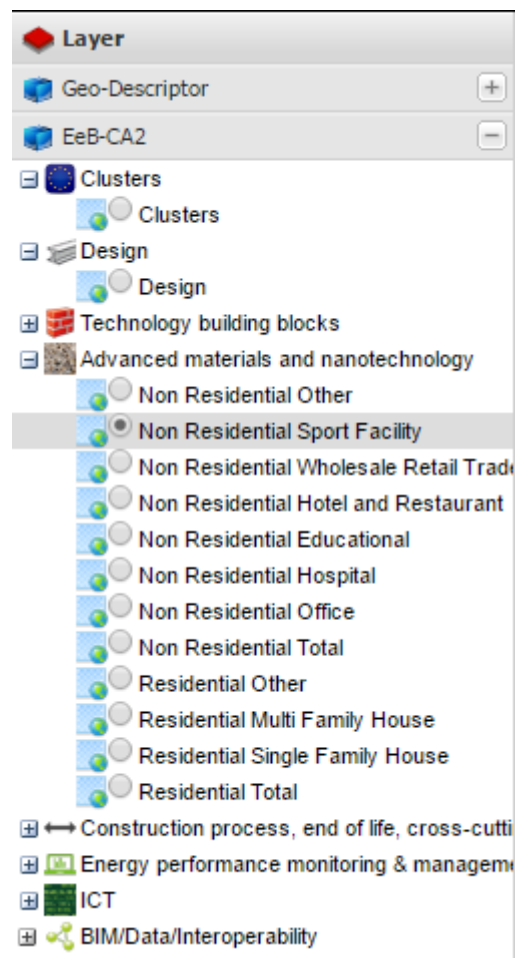


Figure 2 - Details of the EeB-CA2 Layers tree

End-users can select a main technology area by selecting among the 7 different EeB-CA2 Working Groups (WGs), which were defined in the context of WP2 (see Deliverable D2.2) according to the EeB PPP roadmap domains. Each WG corresponds to a technological domain as listed below:

- WG1 - Design
- WG2 - Technology building blocks
- WG3 - Advanced Materials and nanotechnologies
- WG4 - Construction process, end of life, cross-cutting information

- WG5 - Energy performance monitoring & management
- WG6 - ICT
- WG7 - BIM / Data / Interoperability

For WG1, WG4, WG5, WG6, and WG7, **static information** related to the EeB PPP projects and its innovations are presented through the platform (information gathered from the monitoring questionnaire launched in the context of WP2). No geographical correlation is available for these groups.

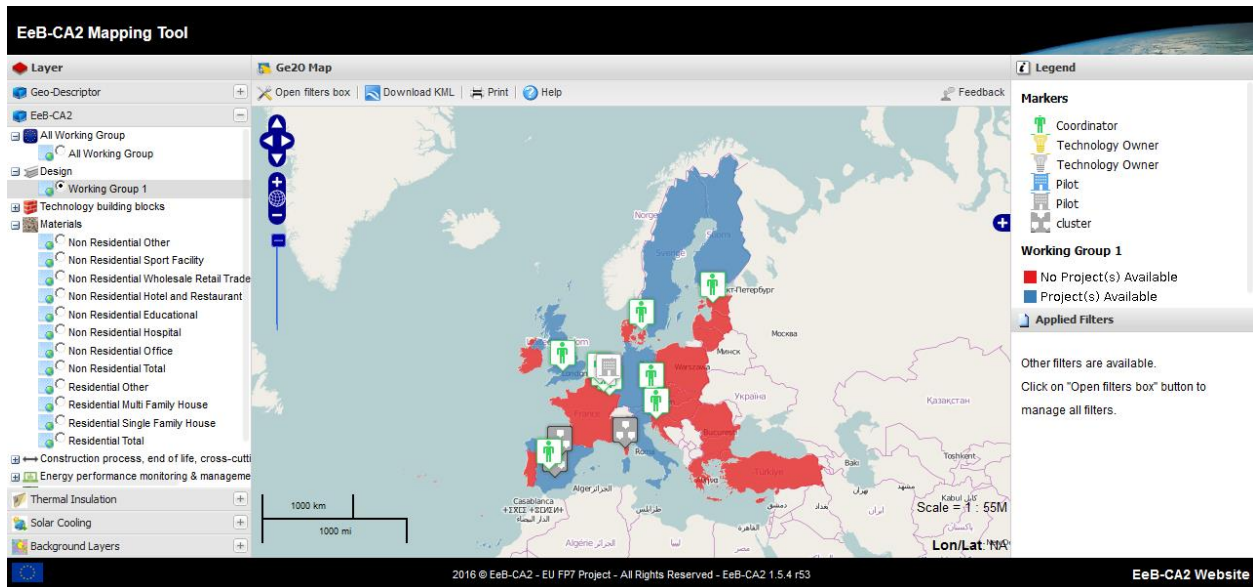


Figure 3 - Example of information layer generated for WG 1

For WG2 and WG3, in addition to the **static information** related to the projects as for the other WGs, a **geographical data layer** according to the type of building addressed is also available: this additional layer might provide meaningful data to evaluate the market potential of innovations developed in those 2 WGs.

For WG2 and WG3, a specific **clustering action** is available considering the innovative technology and building typology distribution data available at country level, data collected from the Buildings Performance Institute Europe (BPIE)².

² Buildings Performance Institute Europe - <http://bpie.eu/>

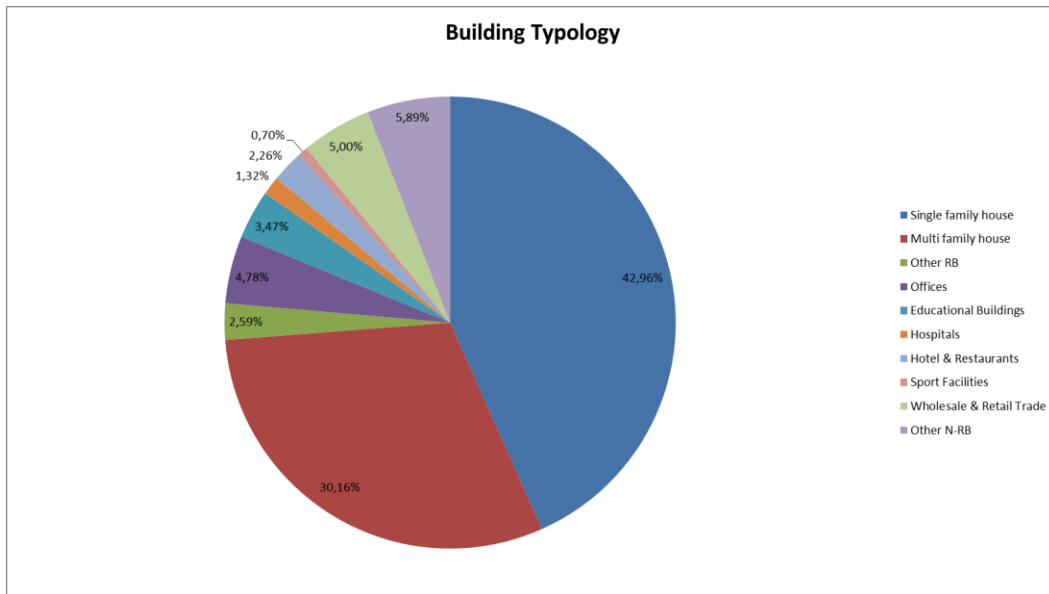


Figure 4 - Buildings Destination Use in Europe (source: BPIE)

Therefore for “Technology building blocks” and “Advanced materials and nanotechnologies” categories different sub layers are defined as shown in figure 5 below:

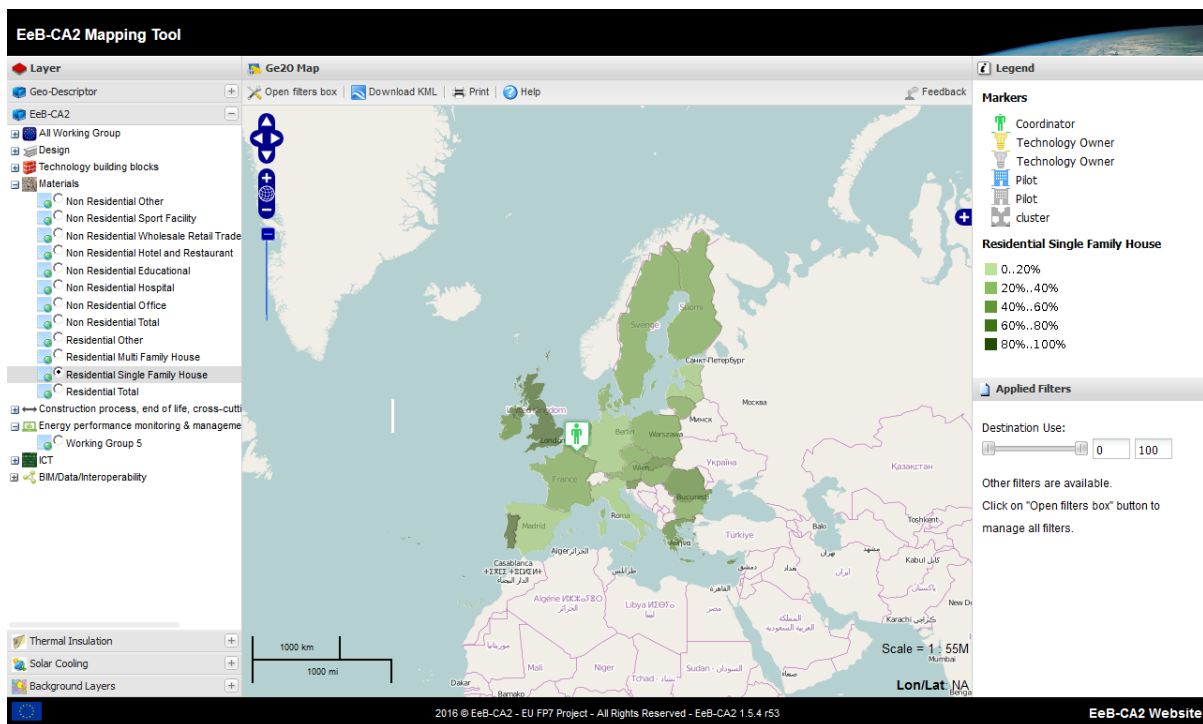


Figure 5 - Example of information layers for WG 3 (Residential Single Family House)

3.4 Map

The map area is where the queried data is rendered with required layer(s).

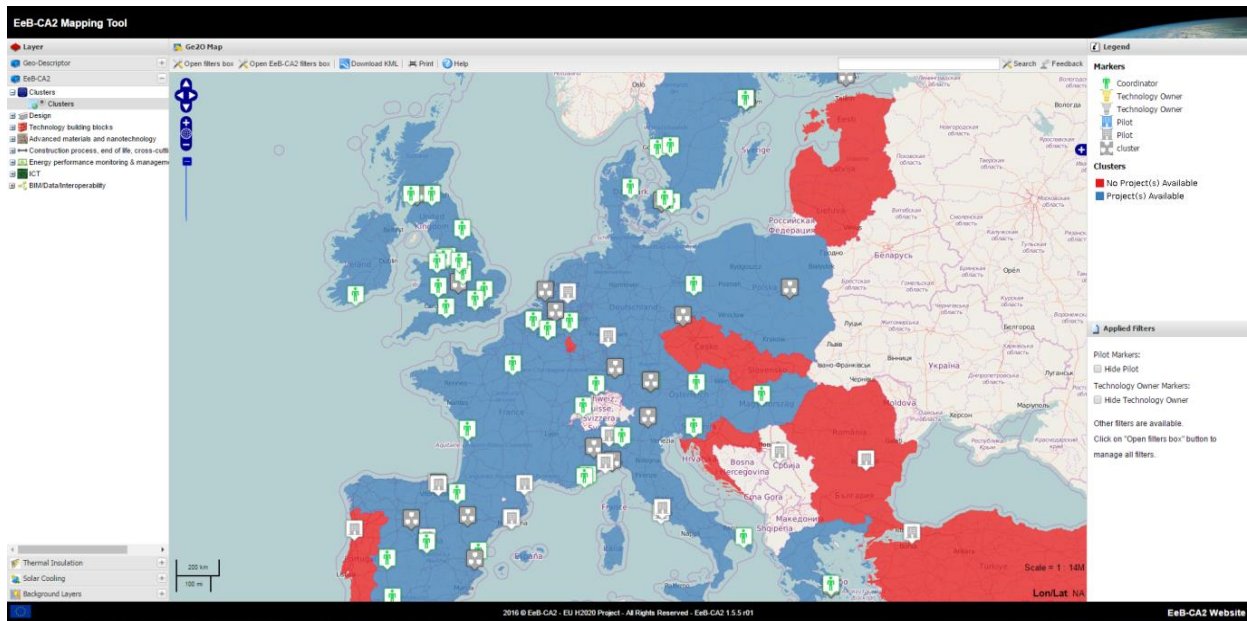








Figure 6 - Example of a distribution of projects and their pilots on the map

The information about projects, coordinator, pilots and technology owner are represented as follows on the map:

- Projects icon  are displayed at the coordinator geographical coordinate.
- Pilot information are displayed on the map with  icon.
- Technology owner information are displayed on the map with  icon.
- If at the same geographical coordinate are present more indicators, a “clustered set” of information is enabled with  icon.
- By clicking on a coordinator/project icon a popup is opened and information about the corresponding project is displayed; At the same time correlated information about pilots and technology owner are enabled with   icons.
- By clicking on a cluster icon a popup is opened with a list of each project / pilot / technology owner which belongs to that point.

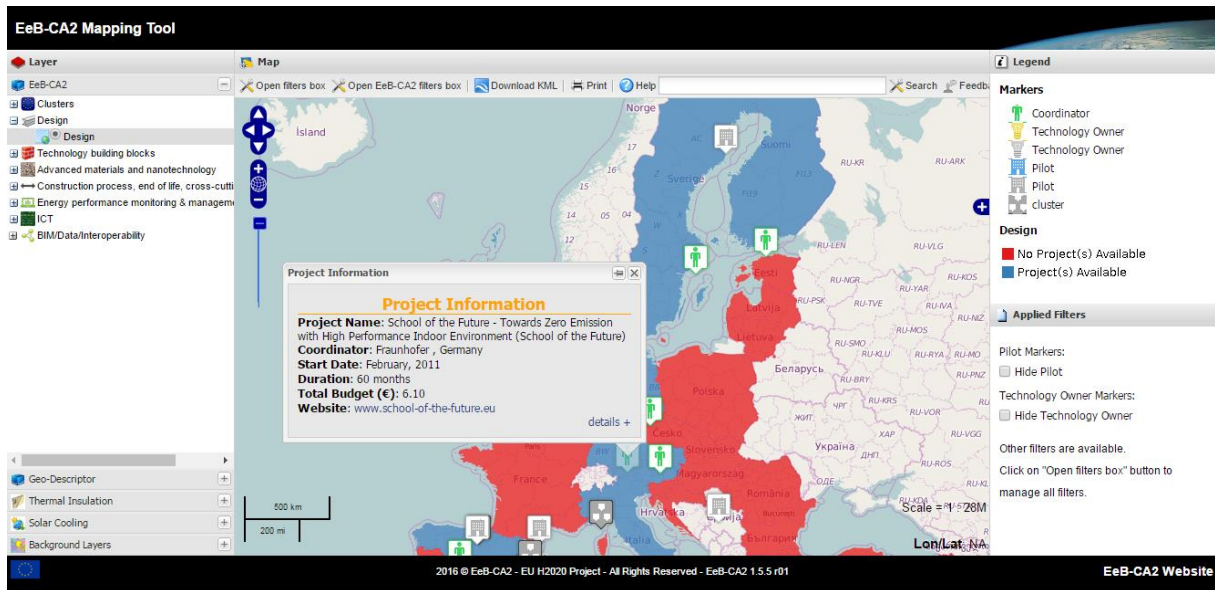


Figure 7 - Popup display with EeB PPP project information with highlighted Demo Pilot

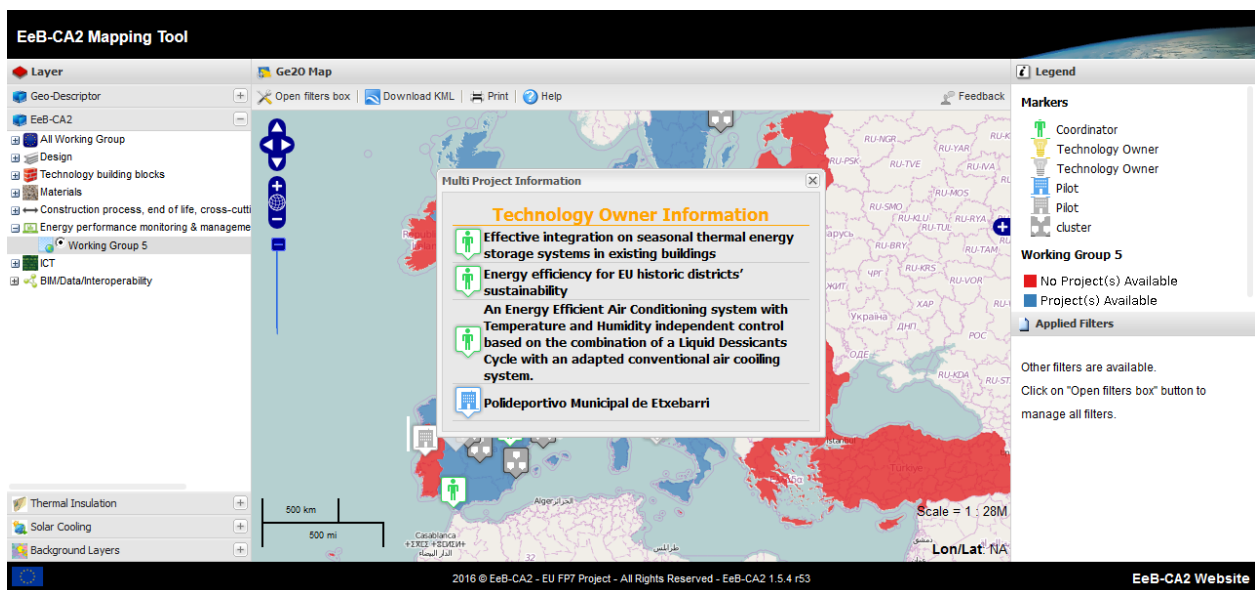


Figure 8 - Popup display presenting a cluster of data

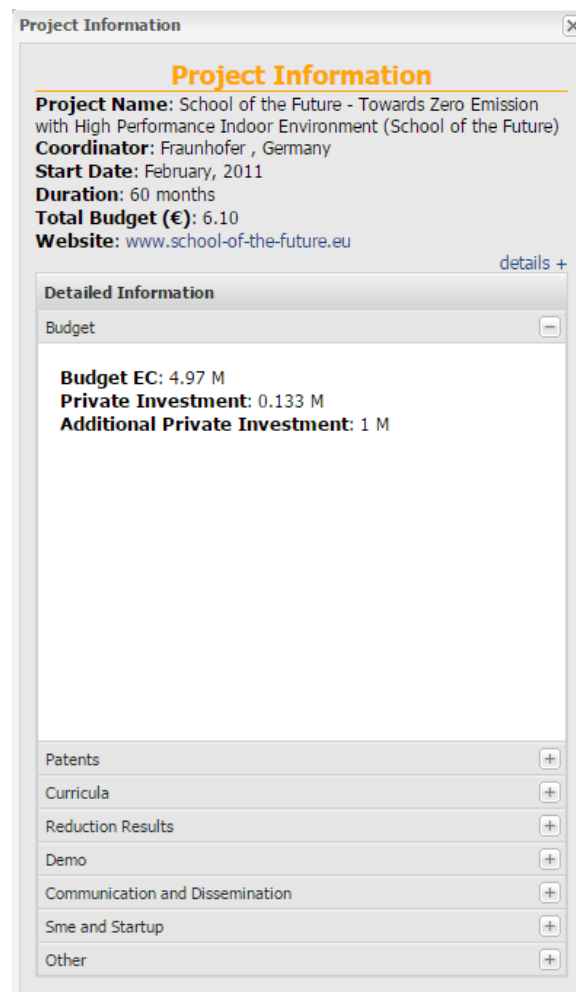


Figure 9 - Popup display presenting project information with expanded details

3.5 Filtering features

There are three types of filters:

- Filters applied locally on selected layers;
- Filters applied globally to all layers;
- Filters applied by search engine.

The local filters, if enabled, are displayed in the “Applied Filters” area. Local filters permit to set and adjust the range of building destination use distribution: this relates only to WG2 and WG3.

The local filters includes also a simple feature that enables the user to hide/show markers on the map related to pilots and/or technology owner

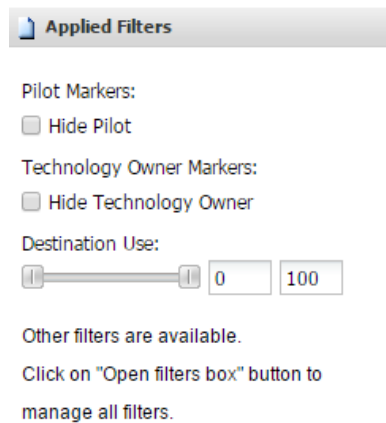


Figure 10 - Local filters

The global filters can be accessed by the buttons in the toolbar.



The global filter contains the former GeoCluster Mapping Tool filters plus new ones developed for the EeB-CA² platform.

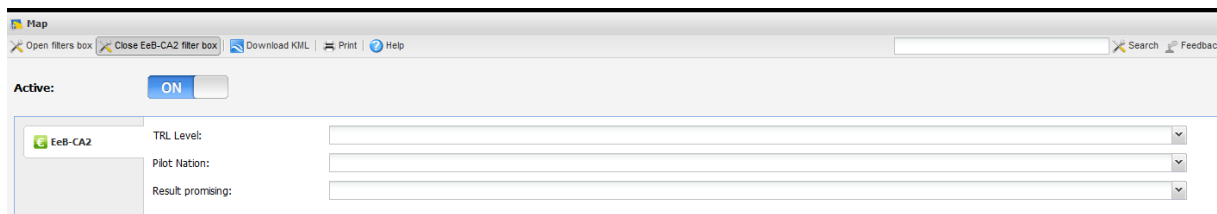


Figure 11 - Global filter related to EeB-CA2 project

There are three defined filters:

1. TRL level: only the projects with selected trl level will be shown.

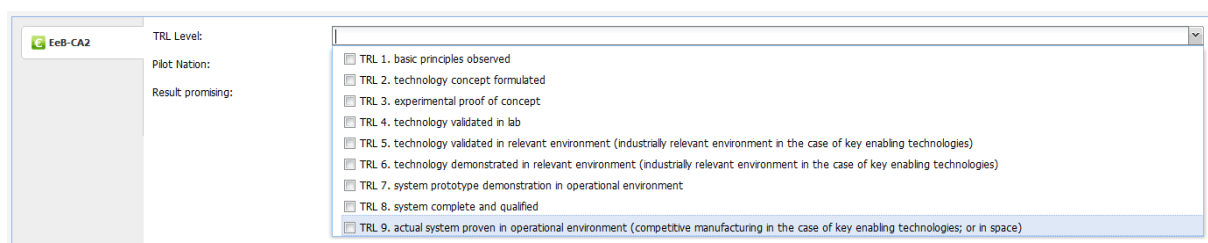


Figure 12 - Global filter related to EeB-CA2 parameters (TRL Level)

2. Pilot country: only the projects with pilots belonging the selected countries will be shown

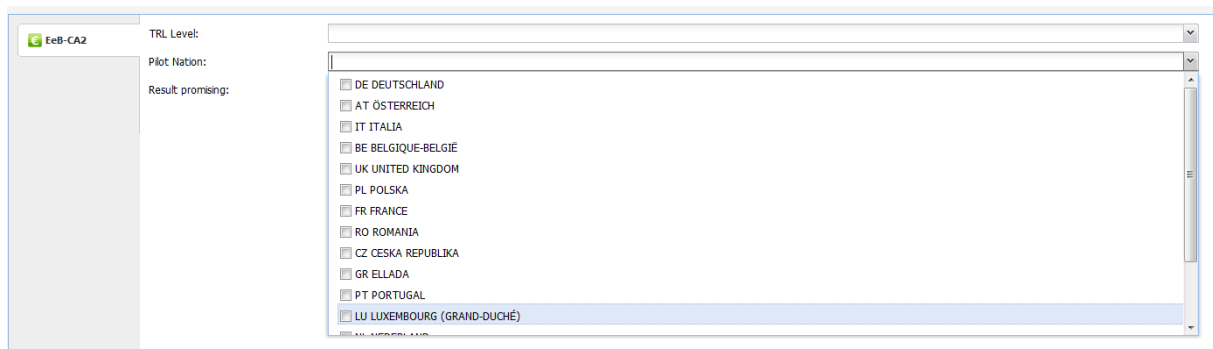


Figure 13 - Global filter related to EeB-CA2 parameters (Pilot Country)

3. Promising results: only the projects ranked with promising exploitable results will be shown.

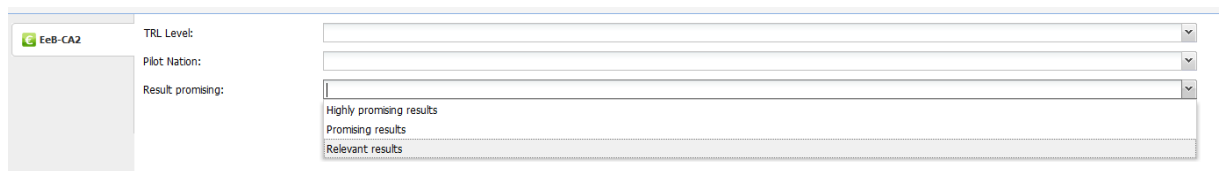


Figure 14 - Global filter related to EeB-CA2 parameters (Promising results)

In the upper right corner of the toolbar, a search box is available.

By typing a keyword it is possible to filter the projects displayed on the map by retrieving only the ones which have the keyword in their project description, innovation description or exploitable results description.

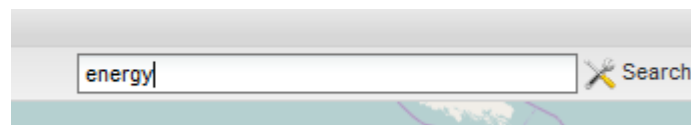


Figure 15 – Search box present in the toolbar

4. BACKEND FEATURES

The data retrieved from the EeB PPP impact questionnaire (2015) set in the context of WP2, as well as data retrieved from the direct phone call performed in the context of WP5, are translated and then organized in an entity relationship database.

To manage data in the database, a backend system has been developed.

The backend offers a system to perform basic actions on the data by creating, deleting and updating the singles entity involved in the structured data.

Furthermore the backend offers also a wizard to create projects by following 15 steps.

All these functionalities are reserved to registered users, also known as Platform Manager.

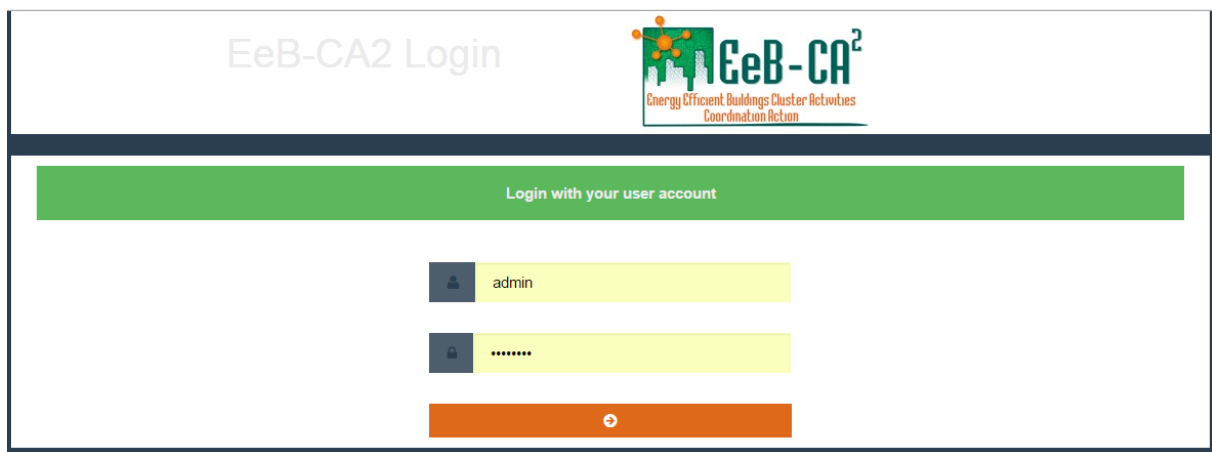
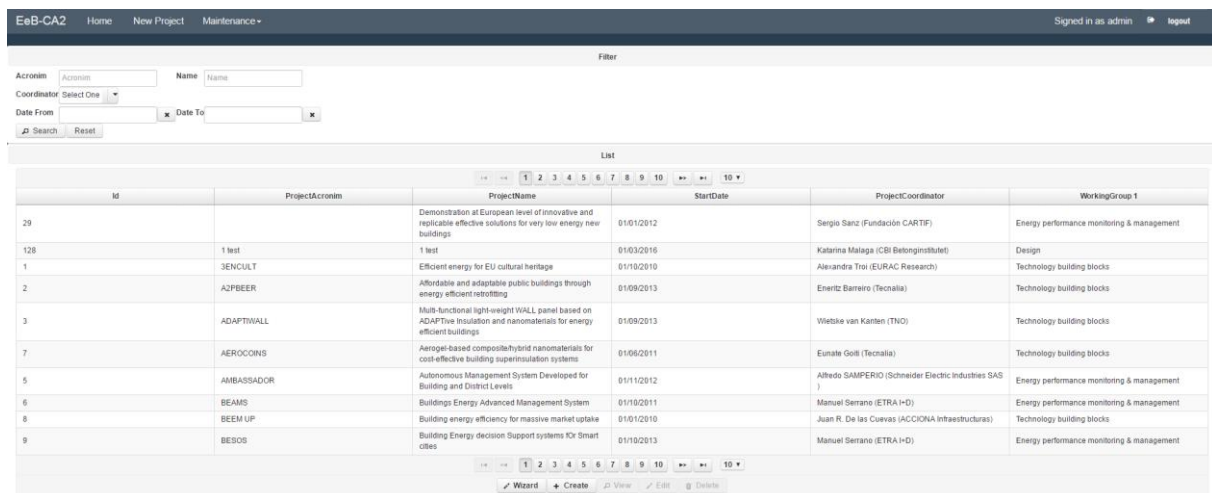


Figure 16 – login page to access administrative functionalities

4.1 Backend functionalities

The backend offers a set of pages to list entities involved in the structured data.

There is a page for each entity like Project, Pilot, and Exploitable Results and so on as reported in Appendix 1.



ID	Project Acronym	Project Name	StartDate	Project Coordinator	Working Group 1
29		Demonstration at European level of innovative and replicable effective solutions for very low energy new buildings	01/01/2012	Sergio Sanz (Fundación CARTIF)	Energy performance monitoring & management
128	1 test	1 test	01/03/2016	Katerina Malaga (CBI Betonginstitute)	Design
1	SENCULT	Efficient energy for EU cultural heritage	01/10/2010	Alexandra Troi (EURAC Research)	Technology building blocks
2	A2PBEER	Affordable and adaptable public buildings through energy efficient retrofiting	01/09/2013	Eneritz Barreiro (Tecnalia)	Technology building blocks
3	ADAPTWALL	Multi-functional light-weight WALL panel based on ACAP-Tire insulation and nanomaterials for energy efficient buildings	01/09/2013	Wietse van Katten (TNO)	Technology building blocks
7	AEROCOINS	Aerogel-based composite/hybrid nanomaterials for cost-effective building superinsulation systems	01/06/2011	Eunale Gullí (Tecnalia)	Technology building blocks
5	AMBASSADOR	Autonomous Management System Developed for Building and District Levels	01/11/2012	Alfredo SAMPERIO (Schneider Electric Industries SAS)	Energy performance monitoring & management
6	BEAMS	Buildings Energy Advanced Management System	01/10/2011	Manuel Serrano (ETRA I+D)	Energy performance monitoring & management
8	BEEEM UP	Building energy efficiency for massive market uptake	01/01/2010	Juan R. De las Cuevas (ACCIONA Infraestructuras)	Technology building blocks
9	BEBOS	Building Energy decision Support systems for Smart cities	01/10/2013	Manuel Serrano (ETRA I+D)	Energy performance monitoring & management

Figure 17 – administrative page (project info)

Each page offers a set of buttons to create or delete or update the data.

4.2 Project Wizard

The main feature of the backend is the project wizard.

With this tool it is possible to follow 15 simple steps to create a project with all the related information like budget, patents, exploitable results, innovations, pilots etc., as shown in Figure 18 - Wizard steps.



Figure 18 - Wizard steps

In brief will be reported the screenshots of the wizard with some information on required data.

1. Step 1 – Base information

ProjectName: *	<input type="text" value="functional adaptive nano-r"/>
StartDate: *	<input type="text" value="01/09/2013"/>
Duration:	<input type="text" value="48"/>
ProjectWebsite:	<input type="text" value="www.foambuild.eu"/>
ProjectAcronim:	<input type="text" value="FoAM-BUILD"/>
ProjectCoordinator:	<input type="text" value="Christoph Mack (Fraunhofer)"/>
WorkingGroup 1: *	<input type="text" value="Technology building blocks (WG2)"/>
WorkingGroup 2: *	<input type="text" value="Advanced materials and nanotechnology (WG3)"/>

Figure 19 - Wizard step 1 - Base information

2. Step 2 – Budget information

BudgetEc:	<input type="text" value="5.09"/>
PrivateInvestments:	<input type="text" value="3.92"/>
AdditionalPrivateInvestments:	<input type="text" value="2.2"/>

Figure 20 - Wizard step 2 - Budget

3. Step 3 – Patents information

NumPatentAppliedOrToApplyFor:	<input type="text" value="3"/>
NumInnoRelatedToPatentAlreadyApplied:	<input type="text"/>
NumInnoRelatedToPatentToApplyFor:	<input type="text" value="2"/>
NumberNewHighSkilledProfileDeveloped:	<input type="text"/>
NumInnoRelatedToPatentGrantedSoFar:	<input type="text"/>
NumPatentGrantedSoFar:	<input type="text"/>

Figure 21 - Wizard step 3 – Patents

4. Step 4 – Curricula information

NewCurriculaDevelopedDescription:	<input type="text" value="New knowledge for foaming of polymers - New knowledge regarding HFFRs - New knowledge regarding growth of microorganisms - New knowledge regarding monitoring of buildings"/>
NumberNewCurriculaDeveloped:	<input type="text" value="4"/>

Figure 22 - Wizard step 4 - Curricula

5. Step 5 – Reduction result information

EstimatedEnergyReductionDesc:	3000 houses with a reduction of use of energy by 80 kWh/year/m ² and an average area of <u>100m²</u> .
EstimatedEnergyReduction:	<input type="text" value="24"/>
EstimatedEnergyReductionPercentage:	<input type="text" value="35.0"/>
EstimatedCo2ReductionDesc:	24000 kWh (see above) + 0,6 kg CO2 per year
EstimatedCo2Reduction:	<input type="text" value="14.4"/>
EstimatedCo2ReductionPercentage:	<input type="text" value="35.0"/>
EstimatedWasteReductionDesc:	This depends strongly on the achieved density and thermal conductivity of the insulation board. This will affect the amount of waste per year which is therefore very hard to estimate. Any numbers will not be respectable.
EstimatedWasteReduction:	<input type="text"/>
EstimatedWasteReductionPercentage:	<input type="text"/>
EstimatedMaterialReductionDesc:	This depends strongly on the achieved density and thermal conductivity of the insulation board. This will affect the amount of waste per year which is therefore very hard to estimate. Any numbers will not be respectable.]
EstimatedMaterialReduction:	<input type="text"/>
EstimatedMaterialReductionPercentage:	<input type="text"/>

Figure 23 - Wizard step 5 - Reduction results

6. Step 6 – Demo information

NumberOfDemonstrator:	<input type="text" value="3"/>
NumberOfMonitoredDemonstrator:	<input type="text" value="3"/>
NumberOfWasteDemonstrator:	<input type="text" value="3"/>
EstimatedDemoEnergyReduction:	<input type="text" value="0"/>
EstimatedDemoEnergyReductionPercentage:	<input type="text" value="65.0"/>
EstimatedDemoCo2Reduction:	<input type="text" value="0"/>
EstimatedDemoCo2ReductionPercentage:	<input type="text" value="0.0"/>
EstimatedDemoMaterialReductionDesc:	<input type="text" value="na"/>
EstimatedDemoMaterialReduction:	<input type="text" value="0"/>
EstimatedDemoWasteReduction:	<input type="text" value="na"/>
EstimatedDemoWasteReductionDesc:	<input type="text" value="na"/>

Figure 24 - Wizard step 6 - Demo

7. Step 7 – Communication and dissemination information

NumberTcorWsDeveloped:	<input type="text" value="2"/>
IsPlannedActivitiesToStd:	<input type="text" value="I don't know"/>
ContributionToStandardDescr:	<div style="border: 1px solid gray; padding: 5px;">The project has a standardization task and also a partner responsible for standardization. Project related standards are being analysed and as soon as potential shortcomings are detected, actions regarding new standards are being taken.</div>
NumberExpectedStdContribution:	<input type="text"/>
NumberTrainedPeople:	<input type="text" value="0"/>
PrEnStandardsDescr:	<input type="text"/>

Figure 25 - Wizard step 7 - Communication and dissemination

8. Step 8 – SMEs and startup information

EstimatedSmeGrowthTurnover:	<input type="text" value="7.0"/>
IsCreatedStartUp:	<input type="button" value="No"/>
NumberOfInvolvedSme:	<input type="text" value="2"/>
EstimatedSmeGrowthStaff:	<input type="text" value="0.0"/>

Figure 26 - Wizard step 8 - SMEs and startup

9. Step 9 – Other information

IsOpenToWiki:	<input type="button" value="No"/>
IsLccLca:	<input type="button" value="I don't know"/>
NoLccLcaDesc:	<div style="border: 1px solid gray; padding: 5px;">A basic LCA/LCC analysis has been conducted and was already shared within the area 5 of the AMANAC cluster</div>
IsMaterialPilotLineProduction:	<input type="button" value="No"/>
NoMaterialPilotLineProductionDesc:	<input type="text"/>
PilotLineProductionKeyPersonId:	<input type="button"/>
LccLcaKeyPersonId:	<input type="button"/>

Figure 27 - Wizard step 9 - Other

10. Step 10 - List of Exploitable Results

ShortDesc	IsAlreadyCommerciallyExploited	TechnologyOwnership	IsSupposeToBeExploited	FutureImplementationActivities	ResultTtl	ExploitationResponsible	Actions
Aerogel by BASF as insulation solution	0			1-Basic principles observed	8-System complete and qualified	1	<input type="button" value="Delete"/>
Lifts – Low energy use.	0			1-Basic principles observed	9-Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies, or in space)	1	<input type="button" value="Delete"/>
Grey water heat recovery system	0			1-Basic principles observed	7-System prototype demonstration in operational environment	1	<input type="button" value="Delete"/>
Mock up solutions for passive walls	2			1-Basic principles observed	8-System complete and qualified	1	<input type="button" value="Delete"/>

Figure 28 - Wizard step 10 - Exploitable result list

Exploitable Result

ShortDesc:	<input type="text"/>
LongDesc:	<input type="text"/>
IsAlreadyCommerciallyExploited:	Select One ▾
TechnologyOwnership:	Select One ▾
IsSupposeToBeExploited:	<input type="text"/>
FutureImplementationActivities:	1-Basic principles observed ▾
ResultTrl:	1-Basic principles observed ▾
ExploitationResponsible:	Project partner in charge of exploitation issues ▾
Technology Owner	▾

Figure 29 - Wizard step 10 - Exploitable result definition

11. Step 11 – List of innovations

Description	Trlid
Device for the investigation of growth of micrororganisms under dynamic conditions.	7-System prototype demonstration in operational environment
High insulating polymer-based foam which enables better insulation of new and retrofitted buildings and therefore energy savings.	6-Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
Halogen-free flame retardant foam which enables a healthier and environmentally friendly fire protection of buildings.	6-Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
New assembly technique for faster and therefore cost-effective installation of ETICS.	5-Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
New moisture monitoring and control system for facades to prevent the growth of microorganisms on ETICS. This system will replace algaecides and fungicides which results in a longer facade lifetime and also in a healthier environment as those materials usually get washed out into the soil.	5-Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

1 << >> 10 ▾

Figure 30 - Wizard step 11 - Innovation list

Innovation ✕

Description:	<input type="text"/>
Trlid:	1-Basic principles observed ▾

Figure 31 - Wizard step 11 - Innovation definition

12. Step 12 – List of private investment

+ Create

List

Investment ProjectPartnerId

No records found.

Figure 32 - Wizard step 12 - Private Investment

13. Step 13 – List of pilots

+ Create ^ Select

List

Name	Longitude	Latitude	Description	Address	City	BioGeographicalRegionId	CountryId
Polideportivo Municipal de Etxebarri	-2.8818402	43.25025			Bilbao	Atlantic	Spain
AS FIDIA	12.337532	42.066654			Cesano (RM)	Atlantic	Italy
Complexo Desportivo S.ta Maria de Lamas	-8.571743	40.976906			Santa Maria da Feira	Mediterranean	Portugal

Figure 33 - Wizard step 13 - Pilots list

Innovation

List

Name	Longitude	Latitude	Description	Address	City	BioGeographicalRegionId	CountryId
Grünenstraße 30-36	0.0	0.0			Augsburg	Continental	Germany
Badgasteiner-Str. 4-6	0.0	0.0			Minich	Continental	Germany
Swedish demo, Piteå	21.399273	65.33935			Piteå	Boreal	Sweden
Amihem, Rijnstate	5.90933	52.00049			Amihem	Continental	Netherlands
ACCIONA's Demo-Park	-3.626198	40.558968			Madrid	Mediterranean	Spain
IRIDEX's Demo-Park	26.165451	44.48451			Bucharest	Continental	Romania
ISTON's Demo-Park	29.300563	40.825836			Tuzla (Istanbul)	Anatolian	Turkey
KARTAL	0.0	0.0			Kartal (Istanbul)	Anatolian	Turkey
BALDESKOLAN	20.942722	64.75225		Nordlandergatan 10 931 33	Skellefteå	Boreal	Sweden

Figure 34 - Wizard step 13 - Pilot selection

Name: *	<input type="text"/>
Longitude: *	<input type="text" value="0.0"/>
Latitude: *	<input type="text" value="0.0"/>
Description:	<input type="text"/>
Address:	<input type="text"/>
City:	<input type="text"/>
BioGeographicalRegionId: *	Artic ▼
CountryId: *	Austria ▼
<input type="button" value="Save"/>	

Figure 35 - Wizard step 13 - Pilot definition

14. Step 14 - Building Destination Use Association

AllType:	<input type="checkbox"/>
Residential:	<input type="checkbox"/>
Office:	<input type="checkbox"/>
Hotel:	<input type="checkbox"/>
Hospital:	<input type="checkbox"/>
WholesaleRetailTrade:	<input type="checkbox"/>
EducationalBuilding:	<input type="checkbox"/>
OtherNonResidential:	<input type="checkbox"/>
SportFacility:	<input checked="" type="checkbox"/>

Figure 36 - Wizard step 14 - Building destination use

15. Step 15 – Summary of data, validation and storage

Project Summary

Base

ProjectName:	functional adaptive nano-materials and technologies for energy efficient buildings
StartDate:	01/09/2013
Duration:	48
ProjectWebsite:	www.foambuild.eu
ProjectAcronim:	FoAM-BUILD
ProjectCoordinator:	Christoph Mack (Fraunhofer)
WorkingGroup 1:	Technology building blocks

Budget

Domains

Patents

Curricula

Reduction Results

Demo

Communication and Dissemination

Sme and Startup

Other

Innovation

Figure 37- Wizard step 15 - Summary

5. CONCLUSIONS

The aim of this report is to support the online release of the final version of the EeB-CA² Knowledge Platform whose nature is OTHER.

The consolidated final release of the EeB-CA² Knowledge Platform was made available online at the following URL <http://platform.e2b-clusters.eu> or by clicking the menu item Platform in the project website (<http://www.e2b-clusters.eu/>)

The Knowledge Platform has been created and populated with:

- 111 FP7 Projects
- 29 Pilots
- 300 Validated Innovations
- 150 Exploitable Results

Information about projects funded under H2020 will be loaded after the results acquisition of the new questionnaires.

In the context of WP4, the EeB-CA2 platform will be presented through a dedicated webinar to all EeB PPP projects in order to assess their interest for this service.

In the meantime, the issue of exploitation, update and maintenance of this platform beyond the EeB-CA2 project will be discussed over the coming months within the instances of ECTP, including its EeB Committee.

6. APPENDIX 1

Hereinafter are presented in alphabetic order (ASC) the tables composing the EeB-CA² Knowledge Platform database which hosts EeB PPP projects data.

ApplicationArea

FIELD	TYPE	NOTE
applicationAreaID	autoincrement	Primary Key
applicationAreaDesc	Varchar 255	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> 20 types of agents along the value chain - but mainly house owners and end users (see website) <input checked="" type="checkbox"/> airports, but open to other environment <input checked="" type="checkbox"/> any building (ideally only one building owner, difficult when several building owners own the building due to more complex configuration) <input checked="" type="checkbox"/> any type of building/rooms or technical equipment <input checked="" type="checkbox"/> boiling / heat exchange systems <input checked="" type="checkbox"/> Building <input checked="" type="checkbox"/> building owners, energy auditors <input checked="" type="checkbox"/> buildings <input checked="" type="checkbox"/> buildings, neighborhoods <input checked="" type="checkbox"/> Cities (municipality - operator interaction) <input checked="" type="checkbox"/> communicating energy to electricity users <input checked="" type="checkbox"/> complete facade <input checked="" type="checkbox"/> districts <input checked="" type="checkbox"/> districts (public places: airport, exhibition site...) <input checked="" type="checkbox"/> energy monitoring of management of groups of buildings/neighborhoods <input checked="" type="checkbox"/> existing or new sport facilities <input checked="" type="checkbox"/> external customers; for planning and implementation <input checked="" type="checkbox"/> groups of buildings (eg university campus), neighborhood, small town (used by city planners together with energy company) <input checked="" type="checkbox"/> heat exchange, cooling services <input checked="" type="checkbox"/> high-end heat exchangers <input checked="" type="checkbox"/> homes, offices, interior <input checked="" type="checkbox"/> hospitals, adaptable to other application areas <input checked="" type="checkbox"/> high-end heat exchangers <input checked="" type="checkbox"/> homes, offices, interior <input checked="" type="checkbox"/> hospitals, adaptable to other application areas <input checked="" type="checkbox"/> Hospitals, schools, universities <input checked="" type="checkbox"/> Hotel building <input checked="" type="checkbox"/> in project: multi-family buildings, post-war buildings <input checked="" type="checkbox"/> industry 4.0 (especially automotive; production plant location comparison related to energy consumption and resource efficiency)general <input checked="" type="checkbox"/> insulation <input checked="" type="checkbox"/> internal demo building by Tecnalia (tested within the framework of this project) <input checked="" type="checkbox"/> large-scale districts, e.g. neighborhoods (retrofitting) <input checked="" type="checkbox"/> light-weight construction <input checked="" type="checkbox"/> municipalities (energy engineering) <input checked="" type="checkbox"/> office buildings <input checked="" type="checkbox"/> public buildings (University campus, center for people with handicaps) <input checked="" type="checkbox"/> public rooms (classrooms, labs) <input checked="" type="checkbox"/> residential buildings <input checked="" type="checkbox"/> residential districts and cities <input checked="" type="checkbox"/> retrofitting; historic buildings <input checked="" type="checkbox"/> underground public spaces <input checked="" type="checkbox"/> weather forecasting <input checked="" type="checkbox"/> windows, insulation, heatings <input checked="" type="checkbox"/> (Blanks)

Barrier

FIELD	TYPE	NOTE
barrierID	autoincrement	Primary Key
barrierDesc	Varchar 255	<ul style="list-style-type: none"> ➤ Lack of exploitation strategy ➤ IPR issues as source of conflict ➤ Lack of business plan ➤ Missing financing for market deployment ➤ Unexpected technical difficulties delaying project or technological development progress ➤ Other

BioGeographicalRegion

FIELD	TYPE	NOTE
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id	autoincrement	Primary Key
description	Varchar 255	Artic, Boreal, Atlantic, Continental, Alpine, Pannonian, Mediterranean, Macaronesian, Steppic, Bleack Sea, Anatolian

BuildingCharacteristic

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
constructionType	Varchar 255	
numberOfFloor	Integer	
dailyUseProfile	Varchar 255	
installedRes	Varchar 255	
pilotID	Unsigned int	Foreign key with Pilot table

CompanyType

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
description	Varchar 255	(LE, SME, RTD Institute, University, Other)

E2BARoadmapDomains

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
description	Varchar 255	Design, Structure, Envelope, Energy equipment, Construction Process, Energy performance monitoring & management, End of life, Cross-cutting & Integration, Materials, ICT, Interoperability, Data Models, BIM, Other

ECTechnologyReadinessLevel

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
description	Varchar 255	<ol style="list-style-type: none"> 1- basic principles observed 2- technology concept formulated 3- experimental proof of concept 4- technology validated in lab 5- technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) 6- technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies) 7- system prototype demonstration in operational environment 8- system complete and qualified 9- actual system proven in operational

		environment (competitive manufacturing in the case of key enabling technologies; or in space)
--	--	---

EeBPrivateInvestment

FIELD	TYPE	NOTE
eebPrivateInvestmentID	autoincrement	Primary Key
projectPartnerID	unsigned int	foreign key with ProjectPartner table
investment	double	default 0
projectID	unsigned int	foreign key with Project table

EUCountry

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
countryName	Varchar 255	Tutte le EU28
abbreviation	Varchar 2	e le loro abbreviazioni

Evolution

FIELD	TYPE	NOTE
evolutionID	autoincrement	Primary Key
evolutionDesc	Varchar 255	<ul style="list-style-type: none"> ➤ Validation within demo-phase ➤ Upscale production ➤ Search for investors ➤ Further technological development ➤ Market deployment ➤ Search for customers and distributors ➤ Certifications needed ➤ Other

EvolutionStep

FIELD	TYPE	NOTE
evolutionStepID	autoincrement	Primary Key
evolutionID	unsigned int	foreign key with Evolution table
exploitableResultID	unsigned int	foreign key with ExploitableResult table

ExploitationResponsibleParty

FIELD	TYPE	NOTE
exploitationResponsiblePartyID	autoincrement	Primary Key
exploitationResponsiblePartyDesc	Varchar 255	<ul style="list-style-type: none"> ➤ Project partner in charge of exploitation issues ➤ External support (through consultant or similar) ➤ Each partner responsible

		<p>of the exploitation of their own results</p> <ul style="list-style-type: none"> ➤ None of the above ➤ Other
--	--	--

ExploitableResult

FIELD	TYPE	NOTE
exploitableResultID	autoincrement	Primary Key
exploitableResultShortDesc	Varchar 255	
exploitableResultLongDesc	Varchar 255	
exploitableResultTRL	unsigned int	foreign key with ECTechnologyReadinessLevel table
isAlreadyCommerciallyExploited	unsigned int	(0=Yes, 1= No, 2= I do not know)
projectID	unsigned int	foreign key with Project table
technologyOwnership	unsigned int	(0- Joint ownership, 1 – Single owner)
isSupposeToBeExploited	Varchar 255	
futureImplementationActivitie	unsigned int	foreign key with ECTechnologyReadinessLevel table
exploitableResultExploitationResponsible	unsigned int	foreign key with ExploitationResponsibleParty table

ExploitableResultOwnership

FIELD	TYPE	NOTE
exploitableResultOwnershipID	autoincrement	Primary Key
technologyMainOwner	unsigned int	foreign key with ProjectPartner table
exploitableResultID	unsigned int	foreign key with ExploitableResult table

ExploitationBarrier

FIELD	TYPE	NOTE
exploitationBarrierID	autoincrement	Primary Key
exploitableResultID	unsigned int	foreign key with ExploitableResult table
barrierID	unsigned int	foreign key with Barrier table

Innovation

FIELD	TYPE	NOTE
innovationID	autoincrement	Primary Key
description	Varchar 255	even more – take into account this issue

trl	unsigned int	foreign key with ECTechnologyReadinessLevel table
projectID	unsigned int	foreign key with Project table

InterestingSupportActivity

FIELD	TYPE	NOTE
interestingSupportActivityID	autoincrement	Primary Key
supportActivityID	unsigned int	foreign key with SupportActivity table
exploitableResultID	unsigned int	foreign key with ExploitableResult table

KeyPerson

FIELD	TYPE	NOTE
keyPersonID	autoincrement	Primary Key
keyPersonName	Varchar 255	
keyPersonRoleID	unsigned int	foreign key with KeyPersonRole table
keyPersonEmail	Varchar 255	
keyPersonPartnerID	unsigned int	foreign key with ProjectPartner table

KeyPersonRole

FIELD	TYPE	NOTE
keyPersonRoleID	autoincrement	Primary Key
keyPersonRoleDesc	Varchar 255	

Concept Developer and End User
 Coordinator, Lead WP2
 Decision-support modules development (WP) leader
 Energy systems design, WP leader for evaluation, and LCA tasks leader
 Exploitation manager
 Involvement in technical Work Packages (technical requirements identification, guidelines for panels manufacturing and installation, LCC activities, etc)
 LCA
 LCA activities
 LCA analysis
 LCA model and also Demonstrator Site
 LCA WP leader
 LCA, LCC, Dissemination and Exploitation
 Classification of different energy technologies which could be used for the development of the model. Integration of the energy criteria within the behavioural Algorithms
 Selection of existing sensors currently used in industrial activities and mainly related with energy fea
 Partner
 Partner: LCA, LCC, HSE
 project exploitation
 project manager
 Researcher
 Responsibilities of LCA, LCC
 Scientific and Technical Coordinator
 Task 2.4 (LCA) responsible
 task manager
 WP leader
 WP leader (LCA/Recycling)
 WP6 (Business models and enablers) leader

<input checked="" type="checkbox"/> (Select All)
<input checked="" type="checkbox"/> -
<input checked="" type="checkbox"/> Aerogel development
<input checked="" type="checkbox"/> Consortium member
<input checked="" type="checkbox"/> Coordinator
<input checked="" type="checkbox"/> Coordinator/ Industrial partner for the production of 3I Loose Filling materials
<input checked="" type="checkbox"/> Development of passive systems
<input checked="" type="checkbox"/> Industrial partner
<input checked="" type="checkbox"/> Managing Director
<input checked="" type="checkbox"/> Manufacturers and installers of panels for exterior retrofitting
<input checked="" type="checkbox"/> NRG4Cast platform
<input checked="" type="checkbox"/> partner
<input checked="" type="checkbox"/> Partner: scientific study and industrial uptake of some types of waste binder (3A pellets and microsilica)
<input checked="" type="checkbox"/> Product developer
<input checked="" type="checkbox"/> Project Coordinator
<input checked="" type="checkbox"/> Project Coordinator and Pilot deployment and validation manager
<input checked="" type="checkbox"/> project manager
<input checked="" type="checkbox"/> PProject Partner
<input checked="" type="checkbox"/> Scientifc Coordinator

Pilot

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
name	Varchar 255	
Latitude	Double	
Longitude	Double	
bioGeographicalRegionID	Unsigned int	Foreign key with BioGeographicalRegion table
Description	Varchar 255	
Address	Varchar 255	
City	Varchar 255	
countryID	Unsigned int	Foreign key with EUCountry table

Project

FIELD	TYPE	NOTE
projectID	autoincrement	Primary Key
projectName	Varchar 255	
startDate	Date	
duration	unsigned int	
budgetEC	double	
privateInvestments	double	
additionalPrivateInvestments	double	
projectWebsite	Varchar 255	
projectCoordinator	unsigned int	foreign key with ProjectCoordinator table
e2baFirstDomain	unsigned int	foreign key with E2BARoadmapDomains table
e2baSecondDomain	unsigned int	foreign key with

FIELD	TYPE	NOTE
		E2BARoadmapDomains table (different from above selection)
e2baThirdDomain	unsigned int	foreign key with E2BARoadmapDomains table (different from above selections)
numPatentAppliedOrToApplyFor	unsigned int	default 0
numInnoRelatedToPatentAlreadyApplied	unsigned int	default 0
numInnoRelatedToPatentToApplyFor	unsigned int	default 0
numPatentGrantedSoFar	unsigned int	default 0
numInnoRelatedToPatentGrantedSoFar	unsigned int	default 0
contributionToStandardDescr	Varchar 255	even more – take into account this issue
isplannedActivitiesToSTD	boolean	(YES/NO)
numberExpectedSTDContribution	unsigned int	default 0
prENStandardsDescr	Varchar 255	nullable
numberNewHighSkilledProfileDeveloped	unsigned int	default 0
numberNewCurriculaDeveloped	unsigned int	default 0
newCurriculaDevelopedDescription	Varchar 255	even more – take into account this issue
numberTCorWSDeveloped	unsigned int	default 0
numberTrainedPeople	unsigned int	default 0
ismaterialPilotLineProduction	boolean	(YES/NO)
noMaterialPilotLineProductionDesc	Varchar 255	even more – take into account this issue
pilotLineProductionKeyPersonID	unsigned int	foreign key with KeyPerson table
isOpenToWIKI	boolean	(YES/NO)
isExploitableResult	unsigned int	(0=Yes, 1= No, but it is planned later on, 2= No, the project should not lead to such results)
isLCCLCA	boolean	(YES/NO)
noLCCLCADesc	Varchar 255	even more – take into account this issue
LCCLCAKeyPersonID	unsigned int	foreign key with KeyPerson table
numberOfInvolvedSME	unsigned int	default 0
estimatedSMEGrowthTurnover	float	
estimatedSMEGrowthStaff	float	
isCreatedStartUp	boolean	(YES/NO)
estimatedEnergyReduction	Varchar 255	Expressed in MWh where available
estimatedEnergyReductionPercentage	float	Expressed as %
estimatedEnergyReductionDesc	Varchar 255	even more – take into account this issue

FIELD	TYPE	NOTE
estimatedCO2Reduction	Varchar 255	Expressed in TOE/year where available
estimatedCO2ReductionPercentage	float	Expressed as %
estimatedCO2ReductionDesc	Varchar 255	even more – take into account this issue
numberOfDemonstrator	unsigned int	default 0
numberOfMonitoredDemonstrator	unsigned int	default 0
estimatedDemoEnergyReduction	Varchar 255	Expressed in MWh/year where available
estimatedDemoEnergyReductionPercentage	float	Expressed as %
estimatedDemoCO2Reduction	Varchar 255	Expressed in TOE where available
estimatedDemoCO2ReductionPercentage	float	Expressed as %
estimatedWasteReduction	Varchar 255	Expressed in T/year where available
estimatedWasteReductionPercentage	float	Expressed as %
estimatedWasteReductionDesc	Varchar 255	even more – take into account this issue
estimatedMaterialReduction	Varchar 255	Expressed in T/year where available
estimatedMaterialReductionPercentage	float	Expressed as %
estimatedMaterialReductionDesc	Varchar 255	even more – take into account this issue
numberOfWasteDemonstrator	unsigned int	default 0
estimatedDemoWasteReduction	Varchar 255	Expressed in T/year and % where available
estimatedDemoWasteReductionDesc	Varchar 255	
estimatedDemoMaterialReduction	Varchar 255	Expressed in T/year and % where available
estimatedDemoMaterialReductionDesc	Varchar 255	
workingGroupID	Unsigned int	Foreign key with WorkingGroup table

ProjectCoordinator

FIELD	TYPE	NOTE
projectCoordinatorID	autoincrement	Primary Key
projectCoordinatorOrganizationName	Varchar 255	
projectCoordinatorKeyContactName	Varchar 255	nullable
projectCoordinatorKeyContactEmail	Varchar 255	nullable
projectCoordinatorTypeID	unsigned int	foreign key with CompanyType table
projectCoordinatorCountryID	unsigned int	foreign key with EUCountry table
projectPartnerID	unsigned int	foreign key with ProjectPartner table
Longitude	Double	

Latitude	double	
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ProjectPartner

FIELD	TYPE	NOTE
projectPartnerID	autoincrement	Primary Key
projectPartnerOrganizationName	Varchar 255	
projectPartnerKeyContactName	Varchar 255	nullable
projectPartnerKeyContactEmail	Varchar 255	nullable
projectPartnerTypeID	unsigned int	foreign key with CompanyType table
projectPartnerCountryID	unsigned int	foreign key with EUCountry table
projectPartnerRoleID	unsigned int	foreign key with ProjectPartnerRole table
Longitude	Double	
Latitude	double	

ProjectPartnerRole

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
description	Varchar 255	vedi le categorie qui sotto
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Search</p> <ul style="list-style-type: none"> <input type="checkbox"/> Administrative coordinator <input type="checkbox"/> Assistant of CO <input type="checkbox"/> coordination support <input type="checkbox"/> Coordinator <input type="checkbox"/> Data monitoring activities, IPR <input type="checkbox"/> Dissemination & communication partner <input type="checkbox"/> Dissemination & Exploitation WP leader <input type="checkbox"/> Dissemination & replication manager <input type="checkbox"/> Dissemination and Commuication Secretariat Manager <input type="checkbox"/> Dissemination and Exploitation manager <input type="checkbox"/> Dissemination Leader <input type="checkbox"/> Dissemination manager <input type="checkbox"/> dissemination role <input type="checkbox"/> Dissemination Secretariat <input type="checkbox"/> Dissemination work package leader and key technology partner <input type="checkbox"/> Dissemination WP leader <input type="checkbox"/> Exploitation Manager <input type="checkbox"/> Lead Project Manager <input type="checkbox"/> Leader of dissemination and replication activities <input type="checkbox"/> leader of WP8: Knowledge dissemination and valorisation <input type="checkbox"/> Member of the Executive Board <input type="checkbox"/> Operative Manager <input type="checkbox"/> Operative Project Coordination <input type="checkbox"/> project management <input type="checkbox"/> Project Manager <input type="checkbox"/> Researcher <input type="checkbox"/> Scientific and Technical Coordinator </div> <div style="width: 45%;"> <ul style="list-style-type: none"> <input type="checkbox"/> Scientific and Technical Coordinator <input type="checkbox"/> Scientific Coordinator <input type="checkbox"/> Scientific Coordinator and Dissemination Manager <input type="checkbox"/> Scientific representative of the project's coordinator <input type="checkbox"/> Supporting Coordinator and Exploitation Manager <input type="checkbox"/> Technical Coordinator <input type="checkbox"/> WP Leader (Dissemination, Exploitation) <input type="checkbox"/> WP leader dissemination and business plans <input type="checkbox"/> WP2 leader <input type="checkbox"/> WP-Leader for dissemination and exploitation </div> </div>		

ProjectPilot

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
projectID	Unsigned int	Foreign key with Project table
pilotID	Unsigned int	Foreign key with Pilot table

SupportActivity

FIELD	TYPE	NOTE
supportActivityID	autoincrement	Primary Key
supportActivityDesc	Varchar 255	<ul style="list-style-type: none"> ➤ Exploitation strategy and IPR basics ➤ Innovation audit & innovation workshop ➤ Introduction to European Technical Assessment ➤ European Technical Assessment ➤ Financing sources beyond project duration ➤ Market analysis: Key aspects to consider ➤ Business plan/proposition: Tips and hints ➤ I do not require any of the above mentioned support instruments since such support is already provided in my project (all)

WorkingGroup

FIELD	TYPE	NOTE
id	autoincrement	Primary Key
description	Varchar 255	WG1 – Design WG2 – Technology Building Blocks WG3 – Advanced Materials and Nanotechnology WG4 – Construction Process, End Of Life, Cross-Cutting Information WG5 – Energy Performance Monitoring and Management WG6 – ICT WG7 – BIM/DATA/INTEROPERABILITY

The ER diagram representing the platform database containing project data is presented in Figure 38.

Separately to EeB PPP project data, the data retrieved from third parties service like the Buildings Performance Institute Europe (BPIE) <http://bpie.eu/> useful to allow the generation of the correlation maps via the geographical layers of the mapping tool is stored in the following tables.

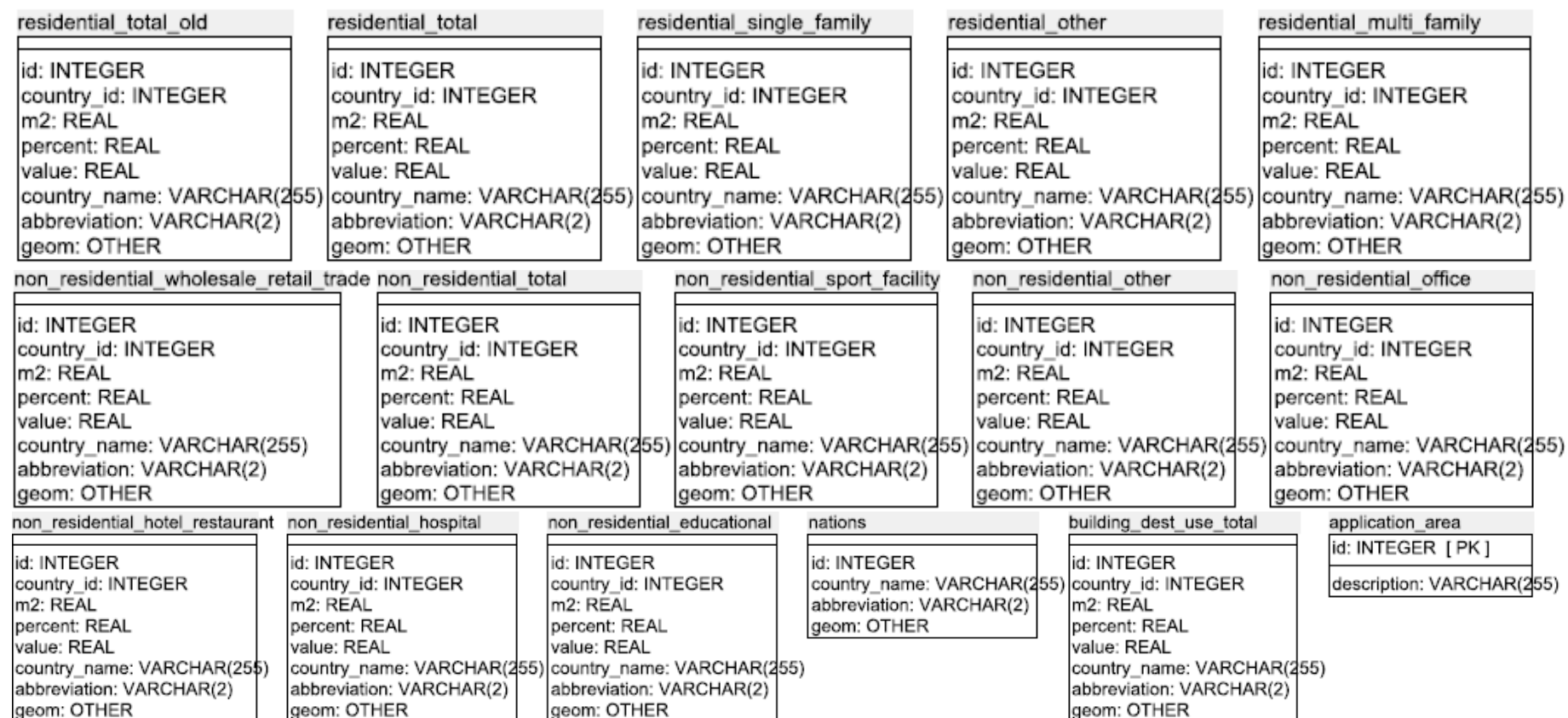


Figure 39 - ER Diagram of building destination type data